

REMARKS

Status of Claims

Claims 1, 3, 5 and 7-10 are pending in this application, the only independent claim being claim 1. By this Amendment, claims 1, 3, 5 and 7-10 are amended.

Summary of Official Action

In the Official Action, claims 1-10 variously were rejected under 35 U.S.C. 112, first and second paragraphs, as not enabling for the claimed invention, failing to comply with the written description requirement, and indefinite; claim 4 also was objected to as being in improper dependent form, and claim 8 was objected to for a spelling error. Claims 1-10 were rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 6-9 of parent U.S. Patent No. 6,787,063. Claims 1-4, 6, 7, 9 and 10 were rejected under 35 U.S.C. 102(b), as anticipated by U.S. Patent No. 4,155,767 (Specht), and claim 8 was rejected under 35 U.S.C. 103(a), as unpatentable over the Specht '767 patent. Claims 1-5 were rejected under 35 U.S.C. 102(b), as anticipated by European Patent Document No. 892028.

Reconsideration and withdrawal of the objections and rejections respectfully are requested in view of the above amendments and the following remarks.

Formal Amendments

The specification has been amended to attend to certain informalities. In particular, the priority data has been updated, as suggested by the Examiner, and a typographical error identified by the Examiner has been corrected. Specifically, the specification has been amended at page 6, paragraph [0039] to reference furazan. The chemical structure for furazan is well known to those of skill in the art, and Applicants submit that those skilled in the art readily would understand the disclosure to refer to furazan. A copy of the chemical structure

for furazan nevertheless is attached hereto for the Examiner's convenience. No new matter has been added.

Submission of Terminal Disclaimer

Without conceding the propriety of the rejection over parent U.S. Patent No. 6,787,063, Applicants have submitted a Terminal Disclaimer in the subject application. Favorable consideration respectfully is requested.

Claim Amendments

The formal rejections and the rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the objections and various rejections, claims 2, 4 and 6 have been canceled and claims 1, 3, 5 and 7-10 have been amended more clearly to recite various novel features of the claimed invention, with particular attention to the Examiner's comments. Support for the amendments may be found in the original application. No new matter has been added.

In this regard, without conceding the propriety of the rejections, claim 1 has been amended to recited the features of an ink jet device for discharging the composition, and at least one heterocyclic solvent having a boiling point equal to or greater than 170°C, as suggested by the Examiner.

With regard to the term substituents, Applicants note that all chemical structures are made up of constituent atoms or groups of atoms, and it is in this manner that Applicants refer to the claimed compounds as having constituents.

Applicants have reviewed the claims and revised them to improve their form. Applicants believe that the proposed amendments address each of the formal objections to the claims set forth in the Official Action, and respectfully request reconsideration and withdrawal of the formal objections and rejection.

Claimed Invention

The present invention relates to a novel method for producing a film. In one aspect, as recited in claim 1, the claimed invention relates to a method for producing a film, comprising: discharging from an ink jet device onto a surface a composition, the composition comprising a solvent including at least one heterocyclic compound and a functional material selected from the group consisting of conductive materials, insulative materials and semiconductive materials, the at least one heterocyclic compound having one or more substituents excluding a hydrogen atom, containing an oxygen atom as a constituent group, and having a boiling point equal to or greater than 170°C; and removing the solvent from the composition to form a film.

Prior Art Distinguished

Applicants submit that the prior art fails to anticipate the claimed invention. Moreover, Applicants submit that there are differences between the subject matter sought to be patented and the prior art, such that the subject matter sought taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

The Specht '767 patent relates to jet ink compositions containing tetrahydrofuran solvents, and discloses ink compositions suitable for use in ink jet printing on coated or uncoated substrates to form images which are highly resistant to abrasion and penetration by virtue of the penetrating characteristics of a select solvent system. However, Applicants submit that the Specht '767 patent fails to disclose or suggest at least the above discussed features of the claimed invention. In particular, Applicants submit that the Specht '767 patent fails to disclose or suggest at least the feature of a heterocyclic compound having a boiling point equal to or greater than 170°C. The Specht '767 patent is directed to coating metal cans using an ink jet method. The solvent of the Specht '767 patent composition must have a low boiling point, because a solvent that has a low boiling point dries quickly. Specifically, the

disclosed THF and Dioxane solvents have low boiling points. On the other hand, in the claimed invention, the solvent is used to prevent clogging of the ink jet nozzle, and nonuniformity of a film thickness after ink jet printing. Accordingly, the solvent of the claimed invention comprises a heterocyclic compound having a high boiling point.

The EP '028 reference relates to a composition for an organic EL element and method of manufacturing the organic element, and discloses a compound that can form a high precision pattern in a simple manner in a short time, having a luminescent characteristic. However, Applicants submit that the EP '028 reference fails to disclose or suggest at least the above discussed features of the claimed invention. In the EP '028 reference, the 'coumarin' is a fluorochrome, and the 'coumarin' contributes to light emitting characteristics of the EP '028 film. On the other hand, in the claimed invention the 'coumarin' is a solvent, and the method includes the step of removing the solvent included in the composition to form the film. Thus, the 'coumarin' serves a different function in the respective compounds and the methods are clearly different.

For the above reasons, Applicants submit that claim 1 is allowable over the cited art.

Claims 3, 5 and 7-10 depend from claim 1, and are believed allowable for the same reasons. Moreover, each of these claims recites additional features in combination with the features of base claim 1, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Conclusion

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submit that the claims are in condition for allowance. Favorable consideration of the claims and passage to issue of the application at the Examiner's earliest convenience earnestly are solicited.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3, 5 and 7-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Christopher Philip Wrist
Registration No. 32,078

JAO:CPW/eks

Attachments:

Terminal Disclaimer
Chemical Structure of Furazan

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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Furazan [IUPAC 1979]

1,2,5-Oxadiazole [IUPAC/CAS]

